



Environmental  
Science &  
Engineering, Inc.

October 29, 1990  
590-1157-0100

Mr. James F. McMullin  
Attorney & Counselor at Law  
835 Paul Brown Building  
818 Olive Street  
St. Louis, Missouri 63101

Dear Mr. McMullin:

Enclosed is a copy of the report prepared by Environmental Science & Engineering, Inc. (ESE) for Waste Advisory, Inc. characterizing the PCB contamination at the Thompson Facility.

As stated in the report, additional work is necessary to fully characterize the site and set limits on the areal extent of the contamination. The additional testing is best performed after the area has been sealed and cleaned. The cleaning should consist of the removal of all miscellaneous debris, dirt and dust, followed by wet sweeping and moping the entire area. All work must be performed by OSHA health and safety trained individuals with appropriate protective equipment.

The potential for the migration of PCBs contamination via the floor drain is also an area of concern. If possible, water and/or sediment samples should be collected and tested for PCBs at the point at which the facility effluent meets the metropolitan sewer system. If no contamination is discovered, the EPA may accept removal of the floor drain trap and capping of the remaining pipe with concrete. Solvent flushing of the contaminated pipe may be an option if an appropriate catchment point can be located.

It may be possible to remediate the PCB-contaminated concrete by solvent washing. If this approach does not completely remove the contamination, the EPA may accept encapsulation of the residual PCBs if it can be proved that the PCBs have not migrated through the concrete and impacted the underlying soils.

I wish to emphasize to all parties concerned with the Thompson Facility that the environment in the transformer room is unsafe and contains high levels of toxic particulate matter. The particle material, in part consisting of fine dust, offers an easy exposure route to individuals entering or working in the effected area. In all but the EPA study at the Thompson Facility, the PCB Aroclor 1260 has been the only



S00072941  
SUPERFUND RECORDS



Mr. James F. McMullin

October 29, 1990

Page 2

compound discovered. The Aroclor 1260 (60 percent chlorine) is one of the most toxic compounds commonly discovered at PCB sites.

The NIOSH TWA maximum for the Aroclor 1260 is  $1.0 \text{ ug/m}^3$ , or 1 part per billion per cubic meter. The data gathered in the ESE study strongly suggests that this level could easily be exceeded in the transformer room environment.

It should also be noted that the potential exists for other compounds to be present in the contaminated area. Although rare, and usually associated with high temperature process, the following compounds have been discovered at PCB sites: polychlorinated naphthalenes, polychlorinated dibenzofurans, and polychlorinated dibenzo-o-dioxins. These are some of the most toxic compounds known and should be tested for before remediation work begins.

As soon as possible, the transformer room should be sealed and entry should only be allowed to individuals with a minimum of Class C protective equipment (i.e., Tyvek coveralls, booties, gloves and respirator).

If you have any questions concerning the Thompson Facility please call Wilson Powell of Waste Advisory, Inc. or me.

Sincerely,



Scott E. George  
Associate Geologist

djw:c-wr50-sS/cc

cc: Wilson Powell--Waste Advisory, Inc. (w/o)  
Jim Owen--Buechner, McCarthy (w/o)  
E. William Bergfeld, Jr.--Boatmen's National Bank



# PCB CONTAMINATION STUDY

Submitted to:

**THOMPSON FACILITY**  
St. Louis, Missouri

Submitted by:

**ENVIRONMENTAL SCIENCE & ENGINEERING, INC.**  
St. Louis, Missouri

ESE No. 590-1157-0100

October 1990



A CILCORP Company

Environmental  
Science &  
Engineering, Inc.



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## 1.0 INTRODUCTION

This report presents the results obtained by Environmental Science & Engineering, Inc. (ESE) during its investigation of polychlorinated biphenyls (PCBs) contamination at the former Carter Carburetor facility, 2800 North Spring, St. Louis, Missouri. The objective of this investigation was to determine the extent of PCB contamination, review the results of previous studies, and evaluate the site in respect to remediation options and costs.

## 2.0 SITE HISTORY

The environmental sampling and remediation work performed in the transformer-circuit breaker area to date are summarized in Table 2-1 and described in the following sections.

### 2.1 INITIAL EVALUATION

An initial evaluation of the site was performed by Environmental Operations, Inc. (EO) in January 1989. According to the EO report (Appendix A) six high level transformers and 16 oil-cooled circuit breakers were located in the study area. The results of four standard wipe tests performed at that time indicated very high levels of PCB contamination [i.e., sample .1 = 106,071 micrograms per 100 square centimeters ( $\text{ug}/100 \text{ cm}^2$ )] (See Appendix A). Only the PCB 1260 Aroclor was identified in this study.

### 2.2 CONCRETE REMOVAL

Mr. Hugh Thompson, the present operator of the site, arranged for the removal of the PCB containing transformers and removed most of the visibly oil stained concrete. The contaminated concrete was placed in drums onsite for later disposal (Photograph 4). The removal operation was conducted "dry" (i.e., with a jackhammer). Date is unknown.

### 2.3 INSPECTION--MDNR

Mr. Henry Rompage Esq. of the USEPA Region VII office stated in a letter dated June 7, 1989 to Mr. James C. Owen, Esq. that an inspection was conducted of Mr. Thompson's facility on February 21, 1989 by Mr. Robert Krager of the Missouri Department of Natural Resources (Appendix B). A soil sample collected from the area where the concrete pad had been removed showed the presence of 1,200 parts per million (ppm) PCBs. No other information is available on this inspection.



Table 2-1. Summary of Environmental Sampling and Remediation Work Performed at the Former Carter Carburetor Site

---

January	1989	A preliminary investigation was performed by Environmental Operations, Inc.
	1989	Heavily contaminated concrete was removed by the present operator.
February	1989	A site inspection and soil sampling was done by the MDNR.
	1989	Additional soil was removed by the present operator.
November	1989	A remediation verification study was conducted by Environmental Operations, Inc.
April	1990	Soil and wipe samples were collected by the USEPA Region VII.
May	1990	A site inspection with concrete sampling was performed by Waste Advisory, Inc.

---

Source: ESE, 1990.



## 2.4 REMEDIATION VERIFICATION STUDY

Environmental Operations, Inc. conducted sampling and analysis to determine the effectiveness of the remediation effort (Appendix C). This project, conducted in November 1989, discovered contamination remaining on the surrounding concrete and in the soil underlying the concrete (see Map, Appendix C). The soil levels ranged from 167 to 209 ppm, the levels on the surrounding concrete surfaces ranged from 449 to 5,407 ug/100 cm<sup>2</sup>. Again, only the PCB 1260 Aroclor was identified. The soil contamination may have been due to concrete dust and fragments generated during the removal operation. Several cores of the concrete were taken in the study area during this project. The cores indicated approximately 1/4 inch to 1/2 inch penetration of oil into the concrete. No further testing or analysis was performed on the cores.

## 2.5 DUST AND SOIL REMOVAL

Mr. Hugh Thompson (operator) removed the concrete dust and some soil in the subject area and placed this material in drums onsite for disposal. Date is unknown.

## 2.6 EPA STUDY

The United States Environmental Protection Agency Region VII conducted sampling and analysis of the soil and concrete in April and May, 1990. The location of the sampling points is unclear but the report (Appendix D and Photograph 3) indicates that the total PCB concentration in the soils exposed in the concrete removal area range from 17.2 to 18.5 ppm. The wipe samples (exact sampling locations unknown) indicate PCB concentration ranges on the solid surfaces (concrete) from 2.1 to 15,600 ug/cm<sup>2</sup>. Unlike the two early studies conducted by EO which identified only the 1260 Aroclor, the EPA analysis identified a broad range of Aroclors [i.e., 1221 to 1260 (see Appendix D)].

## 2.7 WASTE ADVISORY, INC. STUDY

In May 1990, Waste Advisory, Inc. along with Brucker and Associates, Ltd. inspected the site and collected three concrete samples from the transformer-circuit breaker area (see Appendix E). The results indicated PCB (1260 Aroclor) concentrations of 225,197, and 82 ppm.



### 3.0 ESE STUDY

Environmental Science & Engineering, Inc. (ESE) was contracted by Waste Advisory, Inc. in September 1990 to:

1. Determine the concentration of PCBs on the concrete in and around the transformer-circuit breaker area;
2. Determine if the PCB contamination had migrated into the adjacent floor drain; and
3. Determine if the dust created during the PCB contaminated concrete removal project has contaminated surfaces in the transformer area.

### 3.1 SURFACE WIPES

On September 6, 1990 Mr. Scott George of the ESE staff collected 18 wipe samples in and around the transformer-circuit breaker area. The sampling method, as outlined in April 12, 1987 Federal Register 40 CFR Part 761, PCB Spill Cleanup Policy; Final Rule, Section III--Definitions (15) Standard Wipe Test, consisted of wiping a hexane saturated gauze pad over a 100 square centimeter area as outlined by a template (Photographs 1 and 2). Individual templates were used at each sampling site. The hexane wipes were prepared in the laboratory and sealed in glass vials until they were used in the field. Strict decontamination methods were used in the field to prevent cross contamination between samples. One blank sample subjected to field conditions was analyzed for PCBs. One set of sampling replicates (Samples 16 and 17) was collected. Standard and accepted chain-of-custody seals and forms were used. Laboratory quality control is documented in Appendix F, Section 2.

The study area was cleaned of miscellaneous debris and swept clean. The debris and dust was placed in piles for later removal. The individual sampling locations were again swept and gently wiped with a damp cloth to remove any remaining dust. Individual templates were taped to the concrete at each sampling location before sampling started (Photograph 1).

The following is a list of results obtained during the ESE study (see Appendix F and Figure 3-1):





<u>Sample ID</u>	<u>Concentration (ug/100 cm<sup>2</sup>)</u>
Wipe 1	25.3
Wipe 2	743
Wipe 3	44.1
Wipe 4	535
Wipe 5	190
Wipe 6	1,190
Wipe 7	97.1
Wipe 8	2,520
Wipe 9	620
Wipe 10	379
Wipe 11	191
Wipe 12	547
Wipe 13	32.4
Wipe 14	74.3
Wipe 15	338
Wipe 16	342
Wipe 17	213
Dust Wipe	31.0
Blank	< 1.40

Note: Only PCB Aroclor 1260 was identified in this study.

As can be seen from this list and Figure 3-1, the concentration of PCBs drop as you move outward from the concrete removal area (former transformer area). It is also apparent that all areas tested exceed the cleanup guideline of 10 ug/100 cm<sup>2</sup> (see Section 3-4).

### 3.2 FLOOR DRAIN SAMPLE

A Teflon bailer was used to collect a water sample from the floor drain located adjacent to the west wall (see Figure 3-1 and Photograph 3). The Teflon bailer was thoroughly decontaminated in the laboratory with a soap/water wash, a deionized water rinse, several hexane rinses, and a final deionized water rinse. The bailer was wrapped in aluminum foil until used in the field.

Water is visible in the drain approximately 2 to 3 feet below floor level. Water depth is approximately 6 to 10 inches before the piping turns, either a 90° turn or elbow. The water had a high level of suspended solids and an "oily" appearance. The laboratory results indicated a concentration of 1,620 ppm of PCB Aroclor 1260 in the water. This area will require some form of remediation.



### 3.3 DUST SAMPLE

A wipe sample of (concrete) dust was collected from a concrete pad approximately 30 feet from the edge of the removal area (see Figure 3-1). The sampling procedure was identical to the methods used for the other wipe samples. The laboratory results indicated 31.0 ug/100 cm<sup>2</sup> in the sample area. The above results and the presence of white dust (presumably concrete) in the study area indicates extensive cleanup will be required.

### 3.4 CONCLUSIONS

The ESE study indicates extensive PCB contamination remains in the subject area. This confirms work done earlier by Environmental Operations, Inc.; Missouri Department of Natural Resources; United States Region VII EPA; and Waste Advisory, Inc. Including the present ESE study, a total of six projects have discovered high levels of PCB contamination at the site. Some of this contamination has been removed, but high levels still remain on site.

The ESE study, following well documented procedures and quality control-quality assurance methods, has confirmed the following:

1. The concentration of PCBs on the concrete floors in the subject area exceeds the regulatory cleanup levels;
2. High levels of PCB contamination have migrated into the floor drain; and
3. The dust generated during the concrete removal appears to have spread the contamination further.

The soil cleanup guideline for PCB contamination in restricted access areas is 25 ppm. The cleanup level for indoor surfaces in restricted access areas is 10 ug/100 cm<sup>2</sup> 761.125 (standard wipe test) or 100 ug/100 cm<sup>2</sup> followed by encapsulation (40 CFR Part 761.60, Section IV--Requirements for PCB Spill Cleanup, Subsection C, requirements for cleanup of high-concentration spills and low concentration spills involving 1 pound or more PCBs by weight).

The EPA Region VII has not looked favorably upon the encapsulation option recently due to extensive migration of PCBs through concrete.

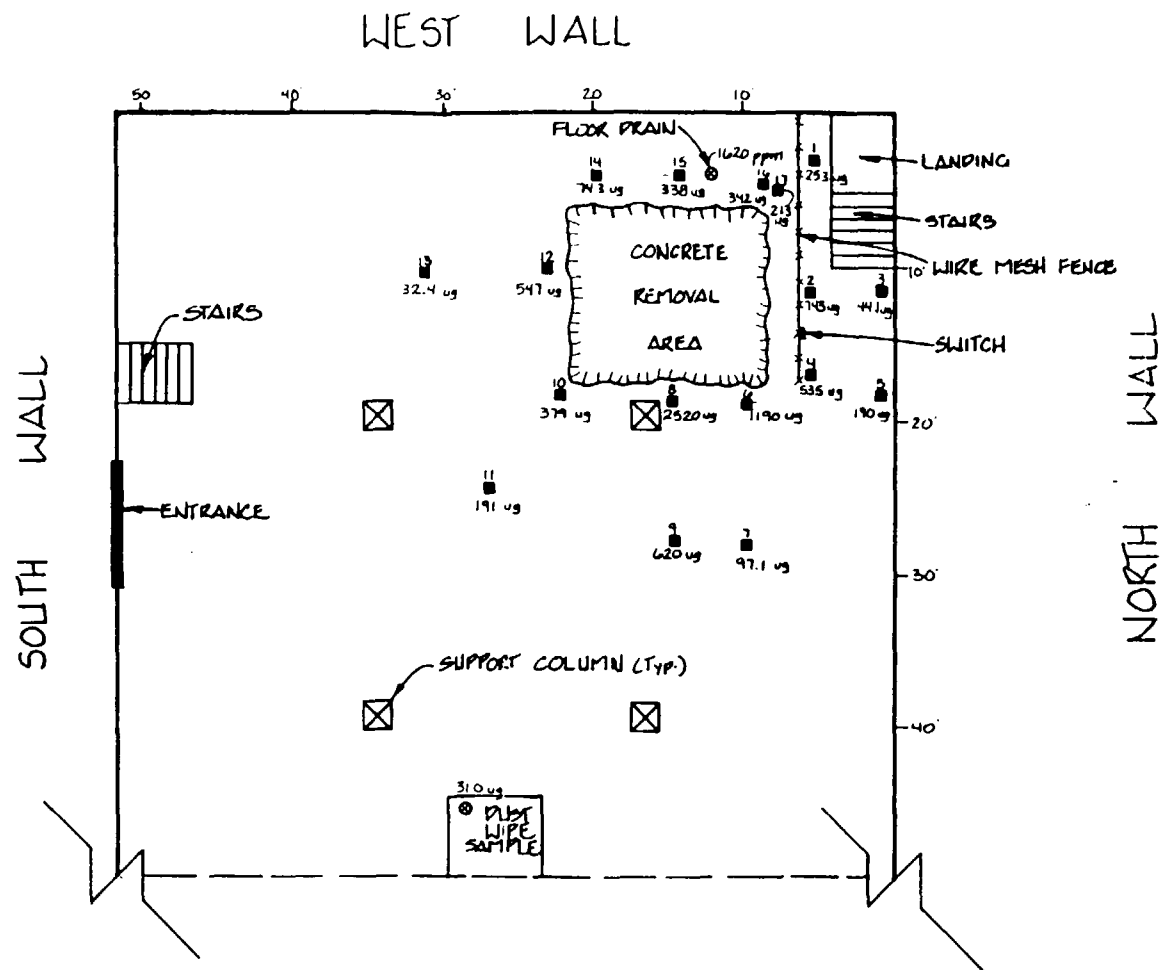


No question should remain, that further remediation is required at the subject site. The area should be considered a hazardous waste site and access should be strictly limited.

A human health threat exists in the form of human contact with, and inhalation of, high concentration PCB contaminated dust. The 10-hour time weighted average exposure limit established by NIOSH is  $1.0 \text{ ug/m}^3$  (NIOSH Guide to Chemical Hazards, U.S. Department of Health and Human Services, 1985). The dust sample collected showed  $31.0 \text{ ug/100 cm}^2$ . Polychlorinated biphenyls are listed as a known carcinogen with inhalation, skin absorption, ingestion, skin, and/or eye contact as routes of entry. A strong possibility exists for the further spread of the contamination by human or vehicle traffic. The contamination could also be carried offsite on worker clothing.

It cannot be over emphasized that the area should be sealed and access be allowed only to personnel with appropriate training and protective equipment.





3-1  
 TCH MAP  
 CARBURETOR - 2800 NORTH SPRING  
 10' x 10'  
 WIPE SAMPLING PAINT  
 ENTRATION OF PCB ug's/100 cm<sup>2</sup>



Environmental  
 Science &  
 Engineering, Inc.





**APPENDIX A**

**Environmental Operations, Inc.'s Initial Study**



JAN 26 - 89 14:17:41  
ENVIRONMENTAL  
OPERATIONS, INC.

HAZARDOUS WASTE AND UNDERGROUND TANK MANAGEMENT

909 PARK AVENUE ST. LOUIS, MO 63104 (314) 231-8226

January 26, 1989

Project #2285

Mr. Hugh Thompson  
P.O. Box 63163  
St. Louis, MO 63163

Mr. Thompson:

This letter is to transmit results of samples collected by Environmental Operations, Inc. and analyzed by Environmetrics, Inc. for Polychlorinated Biphenyls (PCB's) content. The samples were collected by Bill Atkins of Environmental Operations, Inc. on January 16, 1989 at the old Carter Carbaretor facility located at the corner of Grand and St. Louis, Ave.

The purpose of the sampling was to determine if releases had occurred from six high level transformers located on the ground level of the facility and four high level transformers located outside the facility facing Grand Avenue. Also located next to the interior transformers were 16 oil cooled circuit breakers with unknown PCB concentrations. The interior area will be referred to as Bank 2, the exterior as Bank 1.

Samples were collected from areas which visually appeared to have been stained with oil. The samples were collected by first applying hexane to a piece of filter paper and thoroughly rubbing this moistened paper over a 100 sq. cm. area of the sample surface (delineated by a template). The filter was immediately placed in a sample bottle which was then tightly capped and labeled.



The results are as follows:

Sample #	Location	Total-micrograms/100 CM <sup>2</sup>	
2285.1	Bank 2 - Southeast	106,071	Fairly high. Direct h
2285.2	Bank 2 - Central West	3,300	all Subject to Cleanup.
2285.3	In interior where transformer located Bank 2 - North, underneath circuit breaker	680	
2285.4	Bank 2 - Central East	1555	
2285.5	Outside Bank 1 - South pad Sampling western transformer	<2	

A rough sketch of sample locations is attached.

The Environmental Protection Agency (EPA) PCB Spill Clean-up Policy may be found in the Federal Register, Part III, 40 CFR Part 761, issued April 2, 1987. A copy of this regulation is enclosed.

Immediate (48 hours) requirements include (see 40 CFR Part 761 Unit III.C):

- Notification of the EPA regional office and the NRC
- Restrict access to area
- Record and document spill area
- Initiate clean-up

Bank 2 would appear to be a low contact, indoor, non impervious surface, which is addressed in Unit IV,C.3.c. This section states clean up standards of 10micrograms/100cm<sup>2</sup>, or 100micrograms/100cm<sup>2</sup> and encapsulation.

It should be noted that the samples were collected by selecting a sampling surface which appeared to be worst case. No effort was made to identify contamination boundaries or to estimate volumes of material which would need to be removed to meet the clean up standards. To obtain this information a statistically based sampling scheme should be developed.

Any questions regarding this report may be directed to Bill Atkins or myself at 231-8226.

Sincerely,

*Roger R. Hopson*  
Roger R. Hopson  
President

Enclosures

cc: Skip Colburn



ENVIRONMENTAL OPERATIONS  
905 PARK AVENUE  
ST. LOUIS, MO 63104

**ENVIRONMETRIC**

10679 Midwest Industrial B  
St. Louis, MO 63  
(314) 427-01


JOB #2285

ANALYSIS REPORT

## PCBS IN SWABS

<u>SAMPLE NO.</u>	<u>IDENTIFICATION</u>	TOTAL $\mu\text{g}$ <u>100 cm<sup>2</sup></u>	<u>TYPE</u>
2285-1		106,071	1260
2285-2		3,300	1260
2285-3		660	1260
2285-4		1,555	1260
2285-5		<2	----

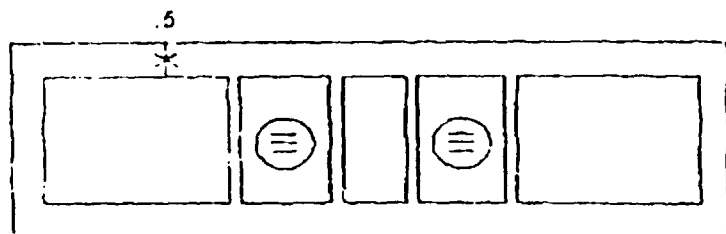
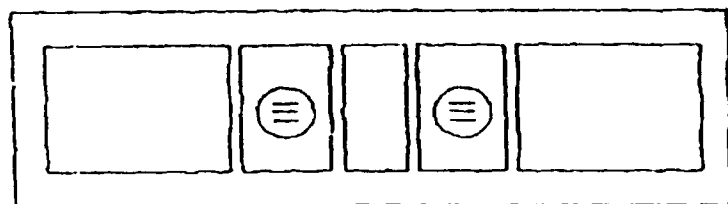
JANUARY 24, 1989

  
WAYNE L. COOPER  
LABORATORY DIRECTOR



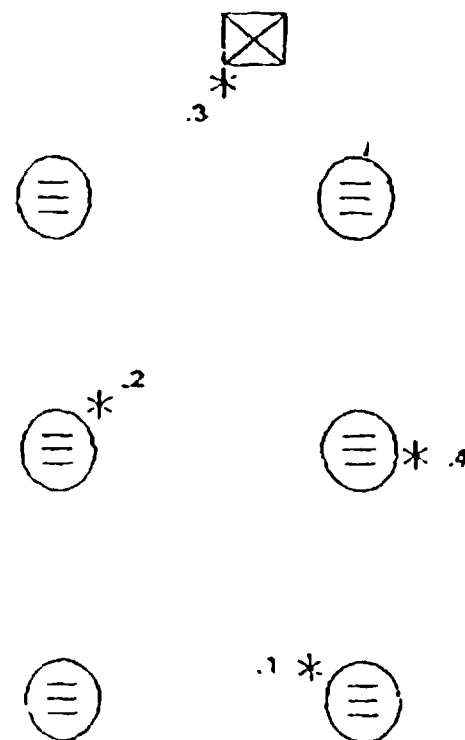


# EXTERIOR TRANSFORMER INSTALLATION



N

# BASEMENT TRANSFORMER INSTALLATION



N

NOT TO SCALE

## LEGEND

- OIL FILLED TRANSFORMER
- OIL FILLED CIRCUIT BREAKER

\* = WIPE SAMPLE POINT

Environmental Operations, Inc.

905 Park Avenue St. Louis MO 63104

DATE: 26 JAN 1989 PROJECT NO.: 2285

DESCRIPTION: PCB SAMPLE POINTS; CARTER CARB.

DRAWING NO.: 2285.1

REVISION: 0

1

26-99 THU 17:43

26-99 THU 12:51



ENVIRONMENTAL OPERATIONS  
905 PARK AVENUE  
ST. LOUIS, MO 63104

**ENVIRONMETRIC**

10679 Midwest Industrial Bldg  
St. Louis, MO 631  
(314) 427-05

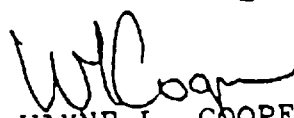
JOB #2285

ANALYSIS REPORT

PCBS IN SWABS

<u>SAMPLE NO.</u>	<u>IDENTIFICATION</u>	TOTAL $\mu\text{g}$ <u>100 cm<sup>2</sup></u>	<u>TYPE</u>
2285-1		106,071	1260
2285-2		3,300	1260
2285-3		660	1260
2285-4		1,555	1260
2285-5		<2	----

JANUARY 24, 1989

  
WAYNE L. COOPER  
LABORATORY DIRECTOR



## **APPENDIX B**

### **USEPA Letter Concerning MDNR Inspection**





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
726 MINNESOTA AVENUE  
KANSAS CITY, KANSAS 66101

June 7, 1989

James C. Owen, Esq.  
Emerald Point  
16141 North Outer Forty Drive, Suite 300  
St. Louis, MO 63017

Dear Mr. Owen:

RE: Hubert Thompson  
TSCA No. VII-87-T-719

An inspection of Mr. Thompson's facility was conducted by Missouri Department of Natural Resources inspector Robert Krager on February 21, 1989. As part of that inspection he took a soil sample from the area where the concrete pad had been removed. Results of the sample analysis showed the presence of 1200 ppm PCB in said soil sample.

Please advise as to what has been done to address clean up of this area. I would appreciate hearing from you as soon as possible, so that we can conclude this case.

Sincerely,

A handwritten signature in cursive script, reading "Henry F. Rompage".

Henry F. Rompage  
Attorney  
Office of Regional Counsel





## APPENDIX C

Laboratory Data from the Environmental Operations, Inc.  
Remediation Verification Study



ENVIRONMENTAL OPERATIONS  
2649 PESTALOZZI STREET  
ST. LOUIS, MO 63118

ATTENTION: BILL ATKINS

INVOICE: #6708

## ENVIRONMETRICS

2345 Millpark Drive  
Maryland Heights  
St. Louis County, MO 63043  
(314) 427-0550

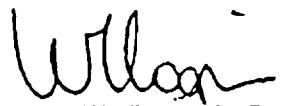
### ANALYSIS REPORT

PCBS IN SOIL

SW-846 8080

<u>SAMPLE #</u>	<u>IDENTIFICATION</u>	<u>TOTAL ppm</u>	<u>TYPE</u>
<i>soil terminal</i>	<i>10 pt comp. 2285.A</i>	167	1260
<i>soil northern</i>	<i>10 pt comp. 2285.B</i>	209	1260
	2285.X	<2	--

NOVEMBER 16, 1989

  
WAYNE L. COOPER  
LABORATORY DIRECTOR



ENVIRONMENTAL OPERATIONS  
2649 PESTALOZZI STREET  
ST. LOUIS, MO 63118

ATTENTION: BILL ATKINS  
INVOICE #6708

## ENVIRONMETRICS

2345 Millpark Drive  
Maryland Heights  
St. Louis County, MO 63043  
(314) 427-0550

### ANALYSIS REPORT

PCBs IN SWABS

SW-846 8080

<u>SAMPLE #</u>	<u>IDENTIFICATION</u>	<u>TOTAL</u> <u>ug/100 cm<sup>2</sup></u>	<u>TYPE</u>
2pt5	No 2285.C	2,823	1260
3pt5	E east 2285.D	2,286	1260
2	go 2285.E	449	1260
3	west 2285.F	5,407	1260
field blank	2285.Y	<2	--

NOVEMBER 16, 1989



WAYNE L. COOPER  
LABORATORY DIRECTOR

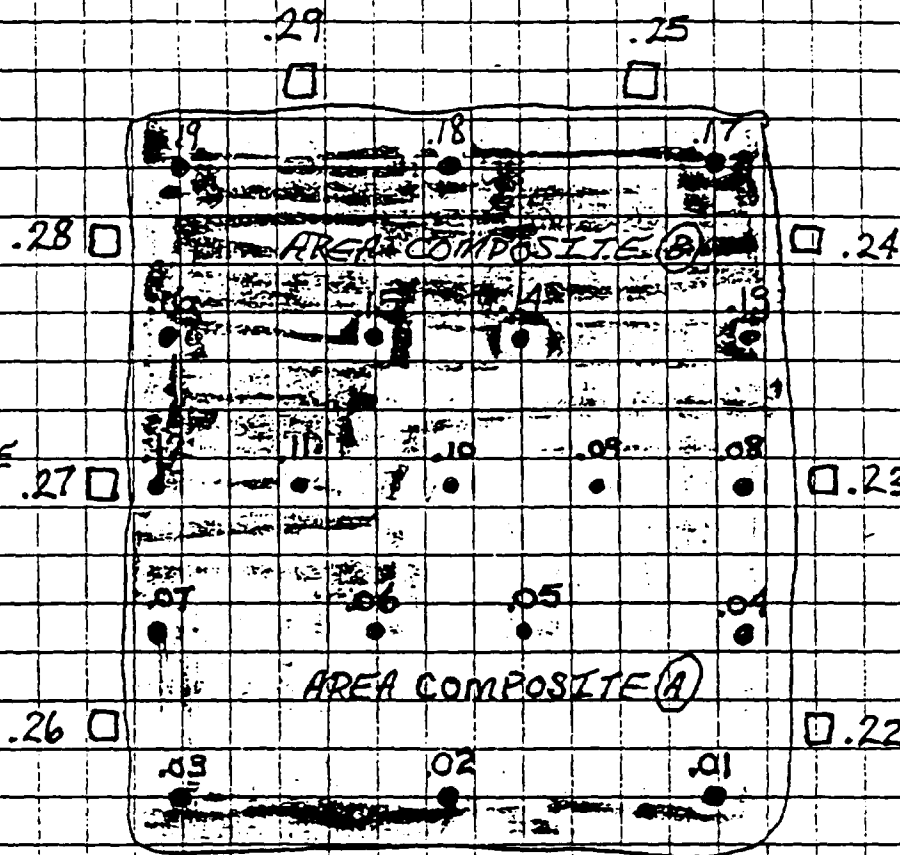




#2285

REAR

AREA COMPOSITE (C)



AREA COMPOSITE (D)

AREA COMPOSITE (A)

AREA COMPOSITE (E)

FRONT





## APPENDIX D

### Laboratory Data from EPA Sampling

—

—



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
726 MINNESOTA AVENUE  
KANSAS CITY, KANSAS 66101

May 16, 1990

James C. Owen, Esq.  
Emerald Point  
16141 North Outer Forty Drive  
Suite 300  
St. Louis, MO 63017

Dear Mr. Owen:

Enclosed as you requested, are the sample analysis results  
for the Thompson property.

Sincerely,

A handwritten signature in cursive script, reading "Henry F. Rompage", is written over the typed name.

Henry F. Rompage  
Attorney  
Office of Regional Counsel

Enclosure



ANALYSIS TYPE: PCB DATA

EI HUBERT THOMSON  
: EPA REGION VII  
SAMPLE PREP: -----

MATRIX: CONTROL BOTTLE UNITS: UB/BHPL  
METHOD: 8701M70 CASE: *mn*  
ANALYST/ENTRY: SBM REVIEWER: ----- DATE: 04/24/90  
DATA FILE: SBM

SLA74001F

PCB1221  
PCB1232  
PCB1016 or  
PCB1242  
PCB1248  
PCB1254  
PCB1260

.30U  
.100U  
.40U  
.40U  
.40U  
.40U  
.100U

*UNANALYZED  
SAMPLE*

\*\* NOTE: N/A MEANS NOT ANALYZED \*\*  
\*\*\* I MEANS ANALYZED BUT INVALID DATA \*\*\*

—

—

—

ANALYSIS TYPE: PCB DATA

E: HUBERT THOMSON  
EPA REGION VII

MATRIX: SOIL  
METHOD: 8701M70

UNIT: UG/KG

CASE:

SAMPLE PREP: ANALYST/ENTRY: SBM REVIEWER: DATE: 04/24/90

DATA FILE: SBM

SLA74002

SLA74003

SLA74004

PCB1221  
PCB1232  
PCB1016 or  
PCB1242  
PCB1248  
PCB1254  
PCB1260

18.5 ppm  
2000.U  
1000.U  
3000.U  
3000.U  
3000.U  
3000.U  
3000.U  
3500.

(SOIL)

18.2 ppm  
2000.U  
1000.U  
3000.U  
3000.U  
3000.U  
3000.U  
3000.U  
3200.

(SOIL)

17.1 ppm  
2000.U  
1000.U  
3000.U  
3000.U  
3000.U  
3000.U  
3000.U  
2100.

(SOIL)

\*\*\* NOTE: N/A MEANS NOT ANALYZED \*\*\*  
\*\*\* I MEANS ANALYZED BUT INVALID DATA \*\*\*

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## ANALYSIS TYPE: PCB DATA

TITLE: HUBERT THOMSON  
LAB: EPA REGION VIIMATRIX: WIPES  
METHOD: 8701M70UNITS: UG/BMPL  
CASE:SAMPLE PREP: ----- ANALYST/ENTRY: SBH REVIEWER: -----  
DATA FILE: SBH

DATE: 04/25/90

SLA74005F<sup>do</sup>

SLA74006

SLA74007

CB1221  
CB1232  
CB1016 or  
CB1242  
CB1248  
CB1254  
CB1260.30U  
.100U  
.40U  
.40U  
.40U  
.40U  
.100U150.U  
50.U  
200.U  
200.U  
200.U  
200.U  
820.

(WIPE)

1500.U  
500.U  
2000.U  
2000.U  
2000.U  
2000.U  
5600.

(WIPE)

\*\*NOTE: N/A MEANS NOT ANALYZED \*\*  
\*\*\* I MEANS ANALYZED BUT INVALID DATA \*\*\*



**APPENDIX E**

Waste Advisory, Inc. Report



# WASTE ADVISORY, Inc.

June 20, 1990

Mr. Todd Massa, Atty.  
Buechner, McCarthy, Leonard  
Kaemerer, Owen & Laderman  
16141 N. Outer Forty Drive, Ste 300  
St. Louis, MO 63017

Dear Mr. Massa:

Jim Owen instructed me to submit this report and proposal on the Hugh Thompson Space Center PCB Clean Up Project to you:

Scott George, presently of Brucker Engineering & Assoc., and I examined the site on the 11th of June, took three samples to establish presence of PCBs in concrete adjacent to the area removed and had them tested. Results with this letter.

We, Waste Advisory, then consulted with Environmental Operations, who has represented the bank (Boatmen's) and has done some sampling and testing of their own. They were kind enough to give us their field sampling sketch and results.

We also spoke with Doug Elders, of the USEPA, who said his agency would like to see Mr. Thompson characterize the PCB contamination thoroughly. He doesn't believe a great many tests would be necessary. He has special concern about the area around the drain and the periphery of the excavated area where the transformers stood.

He also exhibited some concern about general surface contamination from the dust created by the concrete removal that was done earlier by Hugh Thompson.

We discussed encapsulation. He said that really was not an option the EPA could buy in light of its past experience with PCBs migrating through thick sections of concrete.

That same characteristic, especially to be feared in the case of old spills, may make solvent cleaning impractical also. He reports the EPA experience with acid/solvent cleaning to be a mix of success and failure. Failure is usually the result of the high relative permeability of the surface cleaned and age of spill. Deeper contamination means less effective cleaning.

We concluded the EPA would respond favorably to a well-supported, practical site characterizing plan and removal. Whatever is done, according to Mr. Elders, the result must be a clean site.



Accordingly, we asked Scott George to put together a proposal for preliminary site characterization. A copy is enclosed for your examination. Whether Brucker Engineering or Scott's new employer, Environmental Science & Engineering, does the work, the estimated costs will be the same. (My confidence is in the individual, Scott George.)

Once this work is done, we will be in a much better position to identify method and cost of remediation.

We will await your approval before proceeding.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read 'W Powell'.

Wilson M. Powell, CHMM

encl/Brucker proposal  
Test results  
Invoice #369

cc/S. George





# ENVIRONMETRICS

2345 Millpark Drive  
Maryland Heights, MO 63043  
(314) 427-0550

WASTE ADVISORY, INC.  
135 W. ADAMS  
KIRKWOOD, MO 63122

ATTN: WILSON M. POWELL

INVOICE # 8910


## ANALYSIS REPORT

PCBs IN SOLID

SW-846 8080

<u>SAMPLE #</u>	<u>IDENTIFICATION</u>	<u>TOTAL ppm</u>	<u>TYPE</u>
	1	225	1260
	2	197	1260
	3	82	1260

JUNE 5, 1990

  
WAYNE L. COOPER  
LABORATORY DIRECTOR



## APPENDIX F

### Laboratory Report from the ESE Study





Environmental  
Science &  
Engineering, Inc.

TECHNICAL MEMORANDUM . . . . . September 24, 1990

TO: Scott George

FROM: John Gemoules *JEG*

SUBJECT: Analytical Results for Soil Samples,  
Waste Advisory, Inc.

Nineteen (19) wipe, one (1) oil, and one (1) water samples were received in the ESE St. Louis Chemistry Laboratory on September 7, 1990, for PCB analyses. The analyses were performed in accordance with the following methods:

<u>Analysis</u>	<u>Method</u>	<u>Units</u>
PCBs, wipe	GC/ECD	ug-total
PCBs, oil	GC/ECD	mg/kg
PCBs, water	8080	ug/L

A quality control (QC) summary is included in this report. The QC samples analyzed with these samples indicate there were no technical problems with the analyses.

The following are the results for the above mentioned samples.

JFG/pl/REPORT/WAI.RP



## **SECTION 1**

### **Analytical Results**





PROJECT NAME: SCOTT GEORGE PRCT/WASTE ADVISORY, INC.  
PROJECT NUMBER: 5902020 0136 FIELD GROUP: WAI  
SAMPLE MATRIX: WIFE PROJECT MANAGER: JOHN F. GEMULES

CONCENTRATION

SAMPLE I.D.	CATR CM-1	CATR CM-2	CATR CM-3	CATR CM-4	CATR CM-5	CATR CM-6	CATR CM-7	CATR CM-8
LAB I.D.	WAI-1	WAI-2	WAI-3	WAI-4	WAI-5	WAI-6	WAI-7	WAI-8
COLLECTION DATE	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90

PARAMETER	CAS NUMBER	UNITS	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260
	12674-11-2	UC	<24.0	<480	<24.0	<24.0	<24.0	<24.0	<24.0
	11104-28-2	UC	<24.0	<480	<24.0	<24.0	<24.0	<24.0	<24.0
	11141-16-5	UC	<24.0	<480	<24.0	<24.0	<24.0	<24.0	<24.0
	53469-21-9	UC	<24.0	<480	<24.0	<24.0	<24.0	<24.0	<24.0
	12672-29-6	UC	<24.0	<480	<24.0	<24.0	<24.0	<24.0	<24.0
	11097-69-1	UC	<24.0	<480	<24.0	<24.0	<24.0	<24.0	<24.0
	11096-82-5	UC	25.3	743	44.1	535	190	1190	55.1



PROJECT NAME: SCOTT GEORGE PRJCT/WASTE ADVISORY, INC.

PROJECT NUMBER: 5902020 0136 FIELD GROUP: WAI

SAMPLE MATRIX: WIPE PROJECT MANAGER: JOHN L. GEMOULES

## CONCENTRATION

SAMPLE I.D.	CRTR CW-9	CRTR CW-10	CRTR CW-11	CRTR CW-12	CRTR CW-13	CRTR CW-14	CRTR CW-15	CRTR CW-16
LAB I.D.	WAI#9	WAI#10	WAI#11	WAI#12	WAI#13	WAI#14	WAI#15	WAI#16
COLLECTION DATE	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90	09/06/90

PARAMETER	CAS NUMBER	UNITS								
PCB-1016	12674-11-2	UG	<24.0	<240	<24.0	<240	<24.0	<24.0	<240	<240
PCB-1221	11104-28-2	UG	<24.0	<240	<24.0	<240	<24.0	<24.0	<240	<240
PCB-1232	11141-16-5	UG	<24.0	<240	<24.0	<240	<24.0	<24.0	<240	<240
PCB-1242	53469-21-9	UG	<24.0	<240	<24.0	<240	<24.0	<24.0	<240	<240
PCB-1248	12672-29-6	UG	<24.0	<240	<24.0	<240	<24.0	<24.0	<240	<240
PCB-1254	11097-69-1	UG	<24.0	<240	<24.0	<240	<24.0	<24.0	<240	<240
PCB-1260	11096-82-5	UG	620	379	191	547	32.4	74.3	136	14.



PROJECT NAME: SCOTT GEORGE PRJCT/WASTE ADVISORY, INC  
PROJECT NUMBER: 5902020 0136 FIELD GROUP: WAI  
SAMPLE MATRIX: WIPE PROJECT MANAGER: JOHN F. GEMOULES

## CONCENTRATION

SAMPLE I.D.	CRTR CW-17	DUST WIPE	BLANK
LAB I.D.	WAI*17	WAI*18	WAI*20
COLLECTION DATE	09/06/90	09/06/90	09/06/90

PARAMETER	CAS NUMBER	UNITS			
PCB-1016	12674-11-2	UG	<120	<24.0	<2.40
PCB-1221	11104-28-2	UG	<120	<24.0	<2.40
PCB-1232	11141-16-5	UG	<120	<24.0	<2.40
PCB-1242	53469-21-9	UG	<120	<24.0	<2.40
PCB-1248	12672-29-6	UG	<120	<24.0	<2.40
PCB-1254	11097-69-1	UG	<120	<24.0	<2.40
PCB-1260	11096-82-5	UG	213	31.0	<2.40

—

—

PROJECT NAME: SCOTT GEORGE PRJCT/WASTE ADVISORY, INC.

PROJECT NUMBER: 5902020 0136 FIELD GROUP: WAI

SAMPLE MATRIX: WIPE PROJECT MANAGER: JOHN E. GEMMILES

CONCENTRATION

SAMPLE I.D.	ASBESTOS
LAB I.D.	WAI-19
COLLECTION DATE	09/06/90

PARAMETER	CAS NUMBER	UNITS	
PCB-1016	12674-11-2	MG/KG-OIL	<1.00
PCB-1221	11104-28-2	MG/KG-OIL	<1.00
PCB-1232	11141-16-5	MG/KG-OIL	<1.00
PCB-1242	53469-22-9	MG/KG-OIL	<1.00
PCB-1248	39500*SECO	MG/KG-OIL	<1.00
PCB-1254	11097-69-1	MG/KG-OIL	<1.00
PCB-1260	11096-82-5	MG/KG-OIL	<1.00





PROJECT NAME: SCOTT GEORGE PRJCT/WASTE ADVISORY, INC.

PROJECT NUMBER: 5902020 0136 FIELD GROUP: WAI-W

SAMPLE MATRIX: WATER PROJECT MANAGER: JOHN F. GEMOULES

## CONCENTRATION

SAMPLE I.D.	CRIR DEN
LAB I.D.	WAI-W#1
COLLECTION DATE	09/06/90

PARAMETER	CAS NUMBER	UNITS	
PCB-1016	12674-11-2	UG/L	<650
PCB-1221	11104-28-2	UG/L	<650
PCB-1232	11141-16-5	UG/L	<650
PCB-1242	53469-22-9	UG/L	<650
PCB-1248	12672-29-6	UG/L	<650
PCB-1254	11097-69-1	UG/L	<650
PCB-1260	11096-82-5	UG/L	1620000



**SECTION 2**

**QC Summary**



NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	
PCB-1016	UG	34671*WIPE	S3868	MB*NONE*1	09/14/90	
PCB-1221	UG	39488*WIPE		MB*NONE*1		
PCB-1232	UG	39492*WIPE		MB*NONE*1		0.0
PCB-1242	UG	39496*WIPE		MB*NONE*1		0.0
PCB-1248	UG	39500*WIPE		MB*NONE*1		0.0
PCB-1254	UG	39504*WIPE		MB*NONE*1		0.0
PCB-1260	UG	39508*WIPE		MB*NONE*1		0.0

Standard Matrix Spike Recovery and Replicate Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	R.P.D.	R.P.D. CRIT
PCB-1016	UG	34671*WIPE	S3868	SP1*NONE*1	09/14/90	5.00	5.28	106	70-125		25
PCB-1016	UG			SP2*NONE*1		5.00	5.93	119	70-125	11.6	25
PCB-1260	UG	39508*WIPE		SP1*NONE*1		10.0	9.84	98.4	30-130		50
PCB-1260	UG			SP2*NONE*1		10.0	11.5	115	30-130	15.6	50



NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	F.P.D.	P.P.D.	CRIT
PCB-1016	UG/L	34671*SEC	S3867	MB*NONE*1	09/14/90	0.0						
PCB-1221	UG/L	39488*SEC		MB*NONE*1								
PCB-1232	UG/L	39492*SEC		MB*NONE*1								
PCB-1242	UG/L	39496*SEC		MB*NONE*1								
PCB-1248	UG/L	39500*SEC		MB*NONE*1		0.0						
PCB-1254	UG/L	39504*SEC		MB*NONE*1		0.0						
PCB-1260	UG/L	39508*SEC		MB*NONE*1		50.4						

Standard Matrix Spike Recovery and Replicate Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	F.P.D.	P.P.D.	CRIT
PCB-1016	UG/L	34671*SEC	S3867	SP1*NONE*1	09/14/90	120	136	113	58-130		25	
PCB-1016	UG/L			SP2*NONE*1		120	106	88.3	58-130	24.5	25	
PCB-1260	UG/L	39508*SEC		SP1*NONE*1		250	297	119	30-130		50	
PCB-1260	UG/L			SP2*NONE*1		250	150	59.8	30-130	66.2	50	





## **SECTION 3**

### **Chain of Custody**

PLEASE INITIAL IF YOU HAVE



ENVIRONMENTAL SCIENCE  
AND ENGINEERING, INC.  
PROJECT NUMBER:

CHAIN-OF-CUSTODY

09-00

FIELD GROUP: WAI-W

PROJECT NAME: SCOTT GEORGE PRJCT/WASTE ADVISORY, INC.

ESE #	FRACTIONS (CIRCLE)	HAZARD CODE	COLLECTION DATE	COLLECTION TIME	SAMPLE I.D. (Only the first 10 Char. will be used)
WAI-W*1	(EC) EQ EC	(T)	9/6/90	14:00	Garritier Drian

NOTE -PLEASE ENTER SAMPLE ID; UP TO 10 ALPHANUMERIC CHARACTERS MAY BE USED.  
-CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES  
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN  
-PLEASE RETURN LOGSHEETS WITH SAMPLES TO ESE

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	RECEIVED BY (NAME/ORGANIZATION/DATE/TIME)
1. <del>SCOTT GEORGE</del> ESE 9-7-90	2. <del>V. K.</del> ESE 9-7-90 0824
2.	

OTHER FIELD NOTES FOR FIELD GROUP WAI-W:

LAB NOTES:

Could not fill all 3 bottles

yes you must fill "3" bottles  
for one sample.

PLEASE INITIAL IF YOU HAVE RECEIVED AND READ THE ENCLOSED INSTRUCTION SHEET \_\_\_\_\_



ENVIRONMENTAL SCIENCE  
AND ENGINEERING, INC.  
PROJECT NUMBER:

09-01  
PROJECT NAME: SCOT GEORGE PRJCT/WASTE ADVISORY, INC.

FIELD GROUP: WAI

ESE #	FRACTIONS (CIRCLE)	HAZARD CODE	COLLECTION DATE	COLLECTION TIME	SAMPLE I.D. (Only the first 10 Char. will be used)
WAI*1	PCB Wipe (SS)	(T)	9/6/90	10:30	Carrier SW-1
WAI*2			9/6/90	10:40	-2
WAI*3			9/6/90	10:50	-3
WAI*4			9/6/90	11:00	-4
WAI*5			9/6/90	11:10	-5
WAI*6			9/6/90	11:20	-6
WAI*7			9/6/90	11:30	-7
WAI*8			9/6/90	11:40	-8
WAI*9			9/6/90	11:50	-9
WAI*10			9/6/90	12:00	-10
WAI*11			9/6/90	12:10	-11
WAI*12			9/6/90	12:20	-12
WAI*13			9/6/90	12:30	-13
WAI*14			9/6/90	12:40	-14
WAI*15			9/6/90	12:50	-15

NOTE -PLEASE ENTER SAMPLE ID; UP TO 10 ALPHANUMERIC CHARACTERS MAY BE USED.  
-CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES  
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN  
-PLEASE RETURN LOGSHEETS WITH SAMPLES TO ESE

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)

RECEIVED BY (NAME/ORGANIZATION/DATE/TIME)

1 ~~SCOT~~ ESE / ESE / 9-7-90  
2

L. V. ESE 9-7-90 0824

OTHER FIELD NOTES FOR FIELD GROUP WAI:

LAB NOTES:

PLEASE INITIAL IF YOU HAVE RECEIVED AND READ THE ENCLOSED INSTRUCTION SHEET \_\_\_\_\_



ENVIRONMENTAL SERVICES  
AND ENGINEERING, INC.  
PROJECT NUMBER:

09-05-90 FIELD GROUP: WAI  
PROJECT NAME: SCOT BORGE PRJCT/WASTE ADVISORY, INC.

ESE #	FRACTIONS (CIRCLE)	HAZARD CODE	COLLECTION DATE	COLLECTION TIME	SAMPLE I.D. (Only the first 10 Char. will be used)
WAI*16	PCB Wipe (SS) (T)		9/6/90	13:00	Cartier C.W. - 16
WAI*17	↓ ↓ ↓ ↓		9/6/90	13:10	- 17

NOTE -PLEASE ENTER SAMPLE ID; UP TO 10 ALPHANUMERIC CHARACTERS MAY BE USED.  
-CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES  
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN  
-PLEASE RETURN LOGSHEETS WITH SAMPLES TO ESE

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)

RECEIVED BY (NAME/ORGANIZATION/DATE/TIME)

1 Scott E. Dwyer ESE 9-7-90  
2

2 Van ESE 9-7-90 0824

OTHER FIELD NOTES FOR FIELD GROUP WAI:

LAB NOTES:

Please add:

WAI*18	(SS) (T)	9-6-90 -	13:20	PCB Dust Wipe
WAI*19	(SS) (T)	9-6-90 -	13:30	Asbestos Gb.
WAI*20	(SS)	9-6-90	—	<del>Trip</del> Blank

PLEASE INITIAL IF YOU HAVE RECEIVED AND READ THE ENCLOSED INSTRUCTION SHEET \_\_\_\_\_





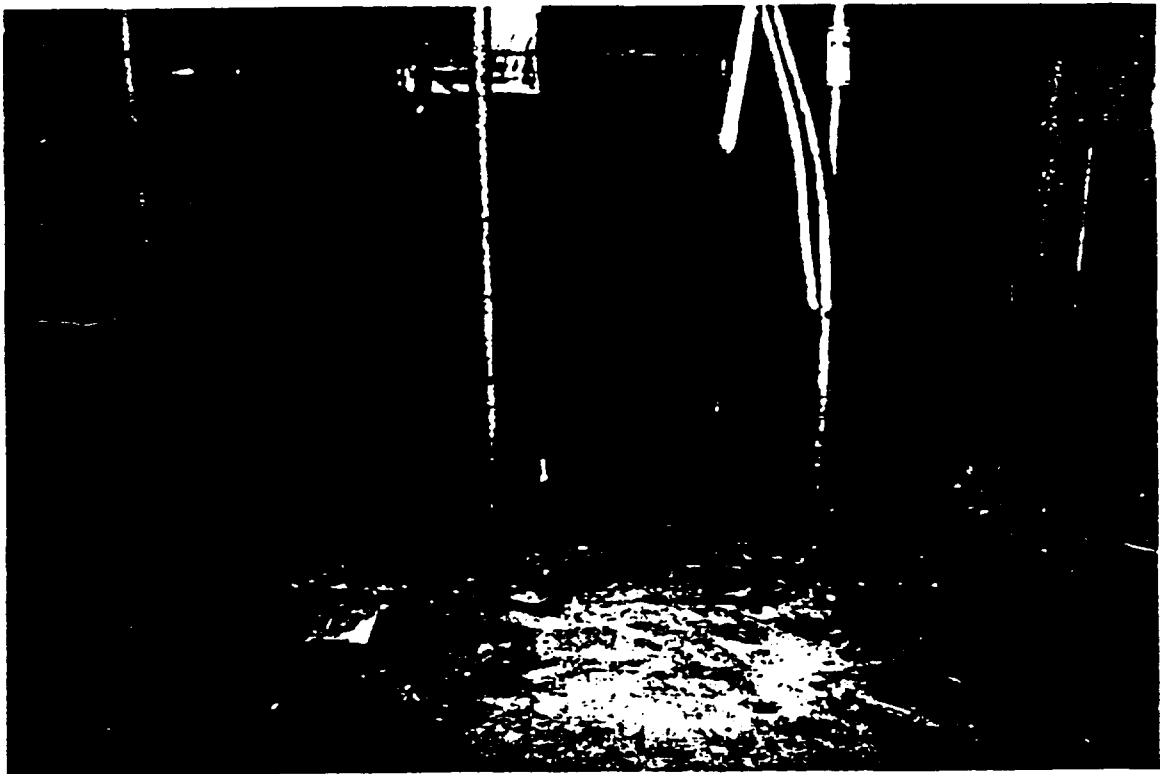
## **APPENDIX G**

### **Site Photographs from the ESE Study**





1. Standard Wipe Test, Sampling Location #2.



2. Study area looking north showing the concrete removal section and sampling point 12.

